Navy Environmental Health Center

Public Health Fact Sheet

BENZENE

What is benzene?

Benzene, also known as benzol, is a colorless liquid with a sweet odor. It evaporates very quickly into the air, dissolves slightly in water, and is highly flammable. Benzene is given off naturally from volcanoes and forest fires. It is also a natural part of crude oil, gasoline, and cigarette smoke.

Benzene is widely used in many man-made products. Examples include plastics, nylon, lubricants, dyes, detergents, drugs, pesticides, and some types of rubber. It is one of the top 20 chemicals ranked for highest volume produced in the United States each year.

What happens to benzene in the environment?

Industrial processes are the main sources of benzene in the environment. It is commonly found in air, water, and soil. Once it is released into the air, benzene will either react with other chemicals present in the air and break down within a few days or it can attach to rain or snow and be carried back down to the ground. Benzene breaks down more slowly in water and soil than in air, and it can pass through the soil into underground water.

How are people exposed to benzene?

Most people are exposed to a small amount of benzene on a daily basis.

Exposure of the general population to benzene is mainly through breathing air that contains tobacco smoke, emissions from gas stations, exhaust from motor vehicles, and industrial emissions.

Benzene does not accumulate or build up in the cells of plants or animals, so it is not typically found in our food chain. For most people, the level of exposure to benzene through food, beverages, or drinking water is very low. Higher exposure can result from drinking well water containing benzene, usually as a result of leaking underground gasoline storage tanks or from landfills and waste sites containing benzene.

If you use city or municipal drinking water, then exposure to benzene in your water should be low. The United States Environmental Protection Agency as well as State and local governments regulate and monitor these public water supplies to ensure they are safe to drink.

Can benzene affect my health?

The health effects from benzene differ depending on the amount of benzene to which a person is exposed and how long the exposure lasts, i.e. short or long term exposure.

Short Term Exposure - Breathing very high levels of benzene or eating or drinking food containing very high levels of benzene can result in death. Health effects from exposure to high levels of benzene range from headaches and dizziness or vomiting to rapid heart rate and convulsions.

Long Term Exposure – Most data involving effects of long-term exposure to benzene are from studies of workers employed in industries that make or use benzene. These workers were exposed for 365 days or more to levels of benzene in air far greater than the levels normally encountered by the general population.

The major effect of benzene from long-term exposure is on the blood. Benzene affects the bone marrow. This can cause a decrease in red blood cells leading to anemia. The **Department of Health and Human Services (DHHS)** has determined that benzene is a known human carcinogen. Long-term exposure to high levels of benzene in the air can cause leukemia, a cancer of the blood-forming organs.

It is not known whether benzene exposure affects the developing fetus in pregnant women or fertility in men. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed high levels of benzene for long periods of time.

For more information: If you have questions regarding the information in this fact sheet, please contact the Navy Environmental Health Center, Environmental Programs Directorate at (757) 953-0932.